

JUL 18 2006

BY TELEFAX TO:  
(571) 273-8300  
=====

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

IN THE MATTER OF THE APPLICATION FOR PATENT

INVENTOR: Arndt GLAESSER	DOCKET NO.: 4932
APPLICATION NO.: 10/564,209	CONFIRM. NO.: 7556
FILING DATE: January 9, 2006	ART UNIT: 3722
TITLE OF INVENTION: Method and Device for Milling Freeform Surfaces	EXAMINER:


COMMISSIONER FOR PATENTS  
P.O. BOX 1450  
ALEXANDRIA, VA 22313-1450

July 18, 2006

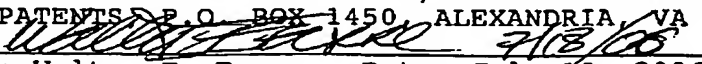
SUBMISSION OF PCT INTERNATIONAL PRELIMINARY REPORT ON  
PATENTABILITY

Dear Sir:

As a supplement to applicant's Information Disclosure Statement of January 9, 2006, we are enclosing the English translation of the International Preliminary Report on Patentability, which includes remarks regarding some of the cited references. Those remarks are not ratified or adopted by the applicant, but are submitted for the Examiner's consideration.

Respectfully submitted,  
Arndt GLAESSER  
ApplicantWFF:sk/4932  
Enclosures:  
Eng. Trans. of Int. Prelim.  
Report on PatentabilityBy   
Walter F. Fasse  
Patent Attorney  
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Hampden, ME 04444-0726CERTIFICATE OF FAX TRANSMISSION:

I hereby certify that this correspondence with all indicated enclosures is being transmitted by telefax to (571) 273-8300 on the date indicated below, and is addressed to: COMMISSIONER FOR PATENTS, P.O. BOX 1450, ALEXANDRIA, VA 22313-1450.

  
Name: Walter F. Fasse - Date: July 18, 2006

## PATENT COOPERATION TREATY

PCT/DE2004/001412

SN: 101564,209

From the INTERNATIONAL BUREAU

## PCT

NOTIFICATION OF TRANSMITTAL  
OF COPIES OF TRANSLATION  
OF THE INTERNATIONAL PRELIMINARY REPORT  
ON PATENTABILITY  
(CHAPTER I OR CHAPTER II  
OF THE PATENT COOPERATION TREATY)  
(PCT Rules 44bis.3(c) and 72.2)

To:

MTU AERO ENGINES GMBH  
Intellectual Property Management (AS)  
Postfach 50 06 40  
80976 München  
ALLEMAGNE

Intellectual Property Management

4. Juni 2006

Frist

Date of mailing (day/month/year) 08 June 2006 (08.06.2006)	
Applicant's or agent's file reference P801922/WO/1	IMPORTANT NOTIFICATION RECEIVED CENTRAL FAX CENTER
International application No. PCT/DE2004/001412	International filing date (day/month/year) 02 July 2004 (02.07.2004) JUL 18 2006
Applicant MTU AERO ENGINES GMBH et al	

## 1. Transmittal of the translation to the applicant.



The International Bureau transmits herewith a copy of the English translation of the international preliminary report on patentability (Chapter I).



The International Bureau transmits herewith a copy of the English translation of the international preliminary report on patentability (Chapter II).

## 2. Transmittal of the copy of the translation to the designated or elected Offices.

The International Bureau notifies the applicant that copies of that translation have been transmitted to the following designated or elected Offices requiring such translation:

None

The following designated or elected Offices, having waived the requirement for such a transmittal at this time, will receive copies of that translation from the International Bureau only upon their request:

AE, AG, AL, AM, AP, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DK, DM, DZ, EA, EC, EE, EG, EP, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OA, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW

## 3. Reminder regarding translation into (one of) the official language(s) of the elected Office(s).

The applicant is reminded that, where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary report on patentability (Chapter II).

It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned within the applicable time limit (Rule 74.1). See Volume II of the PCT Applicant's Guide for further details.

The International Bureau of WIPO  
34, chemin des Colombettes  
1211 Geneva 20, Switzerland

Facsimile No. +41 22 740 14 35

Authorized officer

Ellen Moyse

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Form PCT/IB/338 (January 2004)

## PATENT COOPERATION TREATY

## PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY  
(Chapter I of the Patent Cooperation Treaty)

(PCT Rule 44bis)

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JUL 18 2006

Applicant's or agent's file reference P801922/WO/1	FOR FURTHER ACTION		See item 4 below
International application No. PCT/DE2004/001412	International filing date (day/month/year) 02 July 2004 (02.07.2004)	Priority date (day/month/year) 08 July 2003 (08.07.2003)	
International Patent Classification (8th edition unless older edition indicated) See relevant information in Form PCT/ISA/237			
Applicant MTU AERO ENGINES GMBH			

- This international preliminary report on patentability (Chapter I) is issued by the International Bureau on behalf of the International Searching Authority under Rule 44 bis.1(a).
- This REPORT consists of a total of 7 sheets, including this cover sheet.  
  
In the attached sheets, any reference to the written opinion of the International Searching Authority should be read as a reference to the international preliminary report on patentability (Chapter I) instead.

- This report contains indications relating to the following items:

- |   |   |
|---|---|
| <input checked="" type="checkbox"/> Box No. I | Basis of the report   |
| <input type="checkbox"/> Box No. II           | Priority  |
| <input type="checkbox"/> Box No. III          | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability  |
| <input type="checkbox"/> Box No. IV           | Lack of unity of invention  |
| <input checked="" type="checkbox"/> Box No. V | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement |
| <input type="checkbox"/> Box No. VI           | Certain documents cited   |
| <input type="checkbox"/> Box No. VII          | Certain defects in the international application  |
| <input type="checkbox"/> Box No. VIII         | Certain observations on the international application   |

- The International Bureau will communicate this report to designated Offices in accordance with Rules 44bis.3(c) and 93bis.1 but not, except where the applicant makes an express request under Article 23(2), before the expiration of 30 months from the priority date (Rule 44bis.2).

The International Bureau of WIPO 34, chemin des Colombettes 1211 Geneva 20, Switzerland  Facsimile No. +41 22 740 14 35	Date of issuance of this report 29 May 2006 (29.05.2006)
	Authorized officer  Ellen Moyse  Telephone No. +41 22 338 89 75

Form PCT/IB/373 (January 2004)

## PATENT COOPERATION TREATY

Translation

From the  
INTERNATIONAL SEARCHING AUTHORITY

PCT

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

To:

Date of mailing  
(day/month/year)

Applicant's or agent's file reference

P801922/WO/1

FOR FURTHER ACTION

See paragraph 2 below

International application No.

PCT/DE2004/001412

International filing date (day/month/year)

02.07.2004

Priority date (day/month/year)

08.07.2003

International Patent Classification (IPC) or both national classification and IPC

Applicant

MTU AERO ENGINES GMBH

## 1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☐ Box No. VII Certain defects in the international application
- ☐ Box No. VIII Certain observations on the international application

## 2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1b(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

## 3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA/EP

Authorized officer

Facsimile No.

Telephone No.

Form PCT/ISA/237 (cover sheet) (January 2004)

Box No. 1	Basis of this opinion	International application No. PCT/DE2004/001412
<p>1. With regard to the language, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.</p> <p><input type="checkbox"/> This opinion has been established on the basis of a translation from the original language into the following language _____, which is the language of a translation furnished for the purposes of international search (under Rule 12.3 and 23.1(b)).</p> <p>2. With regard to any nucleotide and/or amino acid sequence disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:</p> <p style="margin-left: 20px;">a. type of material</p> <p style="margin-left: 40px;"><input type="checkbox"/> a sequence listing</p> <p style="margin-left: 40px;"><input type="checkbox"/> table(s) related to the sequence listing</p> <p style="margin-left: 20px;">b. format of material</p> <p style="margin-left: 40px;"><input type="checkbox"/> in written format</p> <p style="margin-left: 40px;"><input type="checkbox"/> in computer readable form</p> <p style="margin-left: 20px;">c. time of filing/furnishing</p> <p style="margin-left: 40px;"><input type="checkbox"/> contained in the international application as filed.</p> <p style="margin-left: 40px;"><input type="checkbox"/> filed together with the international application in computer readable form.</p> <p style="margin-left: 40px;"><input type="checkbox"/> furnished subsequently to this Authority for the purposes of search.</p> <p>3. <input type="checkbox"/> In addition, in the case that more than one version or copy of a sequence listing and/or table(s) relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.</p> <p>4. Additional comments:</p>		

Form PCT/ISA/237 (Box No. 1) (January 2004)

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY		International application No. PCT/DE2004/001412
<b>Box No. V</b>	Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement	
<b>1. Statement</b>		
Novelty (N)	Claims <u>7 - 10</u> YES Claims <u>1 - 6, 8, 9</u> NO	
Inventive step (IS)	Claims _____ YES Claims <u>1 - 10</u> NO	
Industrial applicability (IA)	Claims <u>1 - 10</u> YES Claims _____ NO	
<b>2. Citations and explanations:</b>		
<p>1. Reference is made to the following documents:</p> <p><b>D1: EP-A-1 235 126 (HITACHI, LTD; HITACHI SOFTWARE ENGINEERING CO., LTD)</b></p> <p><b>D2: EP-A-0 706 103 (SIEMENS AKTIENGESELLSCHAFT)</b></p> <p>2. The present application does not meet the requirements of PCT Article 33(1), since the subject matter of <b>claims 1-6, 8 and 9</b> is not novel within the meaning of PCT Article 33(2).</p> <p style="margin-left: 40px;">a) for <b>claim 1</b>:</p> <p style="margin-left: 40px;">Document D1 discloses (the references between parentheses relate to this document):</p> <p style="margin-left: 40px;">A method of milling freeform surfaces on workpieces on a milling device or a milling machine, in particular for 5-axis milling, a workpiece being milled by a tool of the milling machine in such a way that a desired freeform surface is obtained (page 6, paragraph 33; figure 1, item 50), and the tool, for the milling, being moved relative to the workpiece along at least one tool path defined via support points (page 6, paragraph 34), characterized in</p>		

Form PCT/ISA/237 (Box No. V) (January 2004)

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY		International application No. PCT/DE2004/001412
Box No. V	Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement	
<p>that</p> <p>a) the support points of the or each tool path are defined either in workpiece coordinates or in machine coordinates (page 7, paragraph 45),</p> <p>b) at least one spline is produced for each tool path according to the support points (page 7, paragraph 51, figure 1, item 28),</p> <p>c) the or each spline is delivered to a control device of the milling machine (page 7, paragraph 55 - page 8, paragraph 58; figure 1, items 30-32),</p> <p>the control device controlling the movement of the tool along the tool path or each tool path on the basis of the corresponding spline or each corresponding spline (page 8, paragraph 59; figure 1, items 40 and 50).</p> <p>b) for <b>claims 2, 3, 5 and 6:</b></p> <p>D1 also discloses the features of these claims (see D1, paragraphs 45, 69 and 70).</p> <p>c) for <b>claim 4:</b></p> <p>D1 also discloses the features of this claim (see D1, paragraph 52).</p> <p>d) for <b>claim 8:</b></p> <p>The features of the device according to this claim are equivalent to the features of the method in claim 1. The abovementioned arguments therefore also apply to this claim.</p> <p>e) for <b>claim 9:</b></p> <p>D1 also discloses the features of this claim (see D1, figure 1, item 10 as "CAD-CAM"; item 11 as "APT file";</p>		

Form PCT/ISA/237 (Box No. V) (January 2004)

WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/DE2004/001412

Box No. V

Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement*item 20 as "postprocessor"; also see paragraph 35).*

3. The present application does not meet the requirements of PCT Article 33(1), since the subject matter of **claims 7 and 10** does not involve an inventive step within the meaning of PCT Article 33(3).

a) for **claim 7**:

When the same interpolation parameters are used for all the splines of the respective tool path, this involves only one of several obvious possibilities from which a person skilled in the art would choose according to the circumstances in order to calculate the interpolation splines.

b) for **claim 10**:

Document D1 is considered to be the closest prior art with respect to the subject matter of claim 10.

The subject matter of claim 10 therefore differs from the known device in that the splines are provided in the polynomial format.

The problem addressed by the present invention can therefore be considered that of how to increase the speed of the data processing in the postprocessor.

Document D2 describes a device for the numerical path control of machine tools, the splines which the device uses being converted into rational polynomials in order to control the movement of the machine tool along the tool path (see D1, page 2, lines 25-32; claim 1).

Form PCT/ISA/237 (Box No. V) (January 2004)



WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

International application No.

PCT/DE2004/001412

Box No. V

Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability;  
citations and explanations supporting such statement

A person skilled in the art, starting with the device of D1 and confronted with the abovementioned problem, would certainly search for other devices for the numerical path control of machine tools and would find document D2, where the solution to the abovementioned problem is hinted at (see D2, page 2, lines 43-44). The combination of the features of D2 with the features of D1 in order to arrive at the subject matter of claim 10 would therefore be regarded as a routine procedure by a person skilled in the art.

The solution proposed in claim 10 of the present application therefore cannot be regarded as involving an inventive step (PCT Article 33(3)).